

TITLE

TOOLING

(Attorney Docket Number IC-2002)

CROSS REFERENCE TO RELATED APPLICATIONS

Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED R&D

Not Applicable

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention is directed to an apparatus for attachment to a straight edge board for use in leveling an unrestrained or loose material. More specifically, the present invention is directed at an apparatus for attachment to a straight edge board for use in leveling concrete.

Description of the Related Art

Typically, a straight edge two-by four board is used to level newly poured cement, such as in the construction of a sidewalk. This usually requires the worker to extend himself over the newly poured concrete in a ergonomically incorrect manner, which could result in back injury and the like. Additionally, the worker must grasp the board with his/her fingers increasing the fatigue on the worker's muscles.

BRIEF SUMMARY OF THE INVENTION

The present invention provides a solution to the problem of leveling unrestrained materials such as concrete, sand, gravel and the like. The present invention allows for a straight

edge board, which is well accepted in the industry, to be more efficiently utilized in the leveling of unrestrained materials, with better ergonomics for the worker.

One aspect of the present invention is an apparatus for utilization with a straight edge wooden board for leveling of uncured concrete. The apparatus includes a first engagement member and a second engagement member. The first engagement member includes a first frame, a first adjustable handle bracket, a first fastening bolt and a first cylindrical handle. The first frame is composed of steel. The first frame is attached to the straight edge wooden board. The first frame has a top plate with a first plate extending downward approximately 2.5 inches from a first edge of the top plate, and a second plate extending downward 2.5 inches from a second edge of the top plate. The first plate has a first aperture therethrough. The first adjustable handle bracket is attached to an exterior surface of the top plate. The first fastening bolt is disposed through a threaded nut and the first aperture of the first plate for securing the first engagement member to the straight edge wooden board. The first cylindrical elongated handle has a first end threadingly engaged to the first adjustable handle bracket and second end with a grip thereon. The second engagement member includes a second frame, a second adjustable handle bracket, a second fastening bolt and a second cylindrical handle. The second frame is composed of steel. The second frame is attached to the straight edge wooden board. The second frame has a top plate with a first plate extending downward approximately 2.5 inches from a first edge of the top plate, and a second plate extending downward 2.5 inches from a second edge of the top plate. The first plate has a first aperture therethrough. The second adjustable handle bracket is attached to an exterior surface of the top

plate. The second fastening bolt is disposed through a threaded nut and the first aperture of the first plate for securing the second engagement member to the straight edge wooden board. The second cylindrical elongated handle has a first end threadingly engaged to the first adjustable handle bracket and second end with a grip.

5 A second aspect of the present invention is a combination for leveling of uncured concrete. The combination includes a straight edge 2X4 wooden board, a first engagement member and a second engagement member. The first engagement member includes a first frame, a first adjustable handle bracket, a first fastening bolt and a first cylindrical handle. The first frame is composed of steel. The first frame is attached to the straight edge 2X4 wooden board. The first frame has a top plate with a first plate extending downward approximately 2.5 inches from a first edge of the top plate, and a second plate extending downward 2.5 inches from a second edge of the top plate. The first plate has a first aperture therethrough. The first adjustable handle bracket is attached to an exterior surface of the top plate. The first fastening bolt is disposed through a threaded nut and the first aperture of the first plate for securing the first engagement member to the straight edge 2X4 wooden board. The first cylindrical elongated handle has a first end threadingly engaged to the first adjustable handle bracket and second end with a grip thereon. The second engagement member includes a second frame, a second adjustable handle bracket, a second fastening bolt and a second cylindrical handle. The second frame is composed of steel. The second frame is attached to the straight edge 2X4 wooden board. The second frame has a top plate with a first plate extending downward approximately 2.5 inches from a first edge of the top plate, and a second plate extending

downward 2.5 inches from a second edge of the top plate. The first plate has a first aperture therethrough. The second adjustable handle bracket is attached to an exterior surface of the top plate. The second fastening bolt is disposed through a threaded nut and the first aperture of the first plate for securing the second engagement member to the straight edge 2X4 wooden board.

5 The second cylindrical elongated handle has a first end threadingly engaged to the first adjustable handle bracket and second end with a grip.

It is an object of the present object to provide an apparatus to facilitate the leveling of an unrestrained material such as uncured concrete.

It is a further object of the present invention to provide an apparatus to facilitate the leveling of an unrestrained material, that is easy to disassemble and store in a relatively small space.

BRIEF DESCRIPTION OF THE DRAWINGS

15 FIG. 1 is a perspective view of the apparatus of the present invention attached to a straight edge board.

FIG. 2 is an isolated front view of an engagement member of the apparatus of the present invention.

20 FIG. 3 is an isolated side view of an engagement member of the apparatus of the present invention.

FIG. 4 is an isolated view of a handle of an engagement member of the apparatus of the present invention.

FIG. 5 is a perspective view of the apparatus leveling an unrestrained material.

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DETAILED DESCRIPTION OF THE INVENTION

As shown in FIGS. 1-5, the apparatus of the present invention is generally indicated 10.

The apparatus 10 is utilized with a straight edge board 15. The apparatus 10 has a first engagement member 20a and a second engagement member 20b. The first engagement member 20a has a first frame 25a, a first elongated handle 30a, a first adjustable handle bracket 35a and a fastening bolt 40. The second engagement member 20b has a second frame 25b, a second elongated handle 30b, a second adjustable handle bracket 35b and a fastening bolt 40.

Each of the first frame 25a and the second frame 30b has a top plate 45, a first plate 50 and a second plate 55. The first plate 50 extends downward from a first edge 60a of the top plate 45 and the second plate 55 extends downward from a second edge 60b of the top plate 45 to form an U-shaped frame. Each of the first frame 25a and the second frame 25b are preferably composed of a metal material such as steel, titanium (a lightweight material), brass and the like. However, those skilled in the pertinent art will recognize that other materials such as polymers (for example polyamides) may be utilized for the first and second frames 25a and 25b without departing from the scope and spirit of the present invention.

Each of the first plate 50, second plate 55 and top plate 45 of each of the frames 25a and 25b having a thickness, "T", preferably ranging from 0.10 inch to 0.25 inch, and most preferably a thickness of approximately 0.125 inch. The distance, "D", between the first plate 50 and the second plate 55 of each of the frames 25a and 25b preferably ranges from 1.5 inch to 2.0 inch, more preferably 1.8125 inches to 1.875 inches to attached to a straight edge board 15, which is typically a straight edge 2X4 wooden board. Each of the first plate 50, second plate 55 and top plate 45 of each of the frames 25a and 25b having a width, "W", preferably ranging from 2.0 inches to 5.0 inches, and most preferably a width of approximately 4.0 inches.

Each of the first plate 50 and the second plate 55 of each of the frames 25a and 25b having a length, "L", extending downward from an edge 60a or 60b of the top plate 45 preferably ranging from 2.0 inches to 3.5 inches, and most preferably a length of approximately 2.5 inches to attach to a straight edge board 15.

Each first plate 50 of each of the frames 25a and 25b has a first aperture 65a therethrough, and preferably a second aperture 65b therethrough. The apertures 65a and 65b are preferably positioned in parallel along a central horizontal plane of the first plate 50, 1 inch from opposing edges of the first plate 50. A fastening bolt 40 is disposed through each of the apertures 65a and 65b for securing each of the first engagement member 20a and second engagement member 20b to the straight edge board 15. Each of the fastening bolts 40 are preferably engaged with a threaded nut 70. Each fastening bolt 40 preferably has a flat end 75 to facilitate tightening of the fastening bolt 40 into the straight edge board 15. Those skilled in the art will recognize other means for securing it engagement member to the board without

departing from the scope and spirit of the present invention.

The first adjustable handle bracket 35a is disposed an exterior surface of the top plate 45 of the first frame 25a, preferably in the center of the top plate 45. The second adjustable handle bracket 35b is disposed an exterior surface of the top plate 45 of the second frame 25b, preferably in the center of the top plate 45. Each adjustable handle bracket 35a and 35b is composed of a base 80, a fixed socket 85 and a moveable threaded socket 90 for receiving an attachment end 95 of a handle 30a or 30b. The attachment end 95 of each handle 30a and 30b is preferably metal threaded for removable attachment a corresponding adjustable handle bracket 35a or 35b.

Each handle 30a and 30b is elongated and preferably cylindrical with a diameter ranging from 0.75 inch to 2.0 inch, and most preferably 1 inch. A second end 100 of each handle 30a and 30b preferably has a grip 105 thereon. Each handle 30a and 30b preferably has a length, "L", preferably ranging from 12 inches to 36 inches, and most preferably approximately 24 inches. Each handle 30a and 30b is preferably composed of wood, however, those skilled in the pertinent art will recognize that other materials could be used for each of the handles 30 and 30b without departing from the scope and spirit of the present invention. The grip is preferably composed of a rubber or poly mer material, and preferably has a texture thereon for better gripping by a working utilizing the apparatus 10 of the present invention.

In practice, each engagement member 25a and 25b is attached an appropriate distance on a straight edge board, typically equal distance from the center of the straight edge board 15. A worker/user, can adjust the distance between the engagement members 25a and 25b to the

worker's appropriate distance for the workers body dimensions. Thus, the present invention allows for facilitated "fitting" of the apparatus 10 to the worker. This facilitated fitting decreases injury to the worker since the worker does not have to adjust, but instead can adjust the apparatus to the worker's dimensions. Each engagement member 25a and 25b is attached by turning each fastening bolt 40 into the straight edge board 15 to engage and secure each engagement member 25a and 25b to the straight edge board 15.

Each of the handles 30a and 30b are attached to each corresponding adjustable handle bracket 35a and 35b. The workers grips the grip end 100 of each handle 30a and 30b and pulls the unrestrained material to level the material to create a level surface such as a sidewalk. For instance, with concrete, the uncured concrete is poured and then is leveled to create a sidewalk, porch or other substantially flat surface. The 360 degree adjustability of the handles 30a and 30b due to the 360 degrees movement of the socket 90 of each of the adjustable handle brackets 35a and 35b allows for greater positioning of the straight edge board 15 on the material to be leveled.

After use of the apparatus 10, the components may be quickly disassembled and the apparatus stored (without the straight edge board) in a relatively small space. Thus, the apparatus 10 may easily be transported from work site to work site without sacrificing valuable space on a vehicle such as a work truck.